

II. Listing of Claims

Please amend the claims as follows:

CLAIMS:

1. (Currently Amended) A covering agent for a top slag of a metallic melt bath in a metallurgical vessel, ~~in particular of the type~~ used in the steel industry, ~~containing the covering agent comprising~~ a material which melts on the melt bath and performs metallurgical work, wherein the material substantially comprises granules which have been rendered porous and ~~the~~ having a porosity ~~of which is~~ such that, at the temperature of the melt bath temperature, a molten layer of liquid slag is formed on the melt bath, and a thermal barrier layer of the granules is formed above the molten layer of liquid slag.
2. (Currently Amended) The covering agent as claimed in claim 1, ~~which is present in~~ in which the granules have a grain size ~~fraction~~ of between 1 and 50 mm, ~~in particular between 2 and 20 mm.~~
3. (New) The covering agent as claimed in claim 1, in which the granules have a grain size ~~fraction~~ of between 2 and 20 mm.
- 3 4. (Currently Amended) The covering agent as claimed in claim 1 ~~and/or 2~~, in which is a product the granules are made up of shaped granules ~~and/~~ or a pelletized product.

4 ~~5~~. (Currently Amended) The covering agent as claimed in ~~one or more of claims 1 to 3~~ claim 1, ~~in which is~~ which the granules are a granulated foam product ~~and/~~ or an expanded, granulated product.

5 ~~6~~. (Currently Amended) The covering agent as claimed in ~~one or more of claims 1 to 4~~ claim 1, wherein the ~~grains~~ granules have a porosity produced by dewatering ~~and/~~ or calcining.

6 ~~7~~. (Currently Amended) The covering agent as claimed in ~~one or more of claims 1 to 5~~ claim 1, wherein the ~~grains~~ granules have a porosity produced by organic combustibles.

7 ~~8~~. (Currently Amended) The covering agent as claimed in ~~one or more of claims 1 to 6~~, ~~which substantially comprises~~ claim 1, ~~in which the covering agent further includes~~ a calcium aluminate.

8 ~~9~~. (Currently Amended) The covering agent as claimed in ~~claim 7~~ claim 8, wherein the calcium ~~aluminates have~~ aluminate has the following chemical analysis and ratio:

CaO/Al₂O₃ from 0.25 to 4, ~~in particular from 1.0 to 1.5~~,
with preferably up to 15% by mass of auxiliary phases, ~~in particular~~ and one or more of the group including MgO ~~and/or~~₁ MgOSiO₂ ~~and/or~~₁ TiO₂ ~~and/or~~₁ and Fe₂O₃ and/or alkali metals being present.

10. (New) The covering agent as claimed in claim 8, wherein the calcium aluminate has the following chemical analysis and ratio:

CaO/Al₂O₃ from 1.0 to 1.5,

with up to 15% by mass of auxiliary phases, and one or more of the group including MgO, MgOSiO₂, TiO₂, Fe₂O₃, and alkali metals being present.

9 11. (Currently Amended) The covering agent as claimed in ~~one or more of claims 1 to 8~~ claim 1, wherein the ~~grains~~ granules have a porosity of from 5 to 70% by volume, ~~in particular from 20 to 60% by volume.~~

12. (New) The covering agent as claimed in claim 1, wherein the granules have a porosity of from 20 to 60% by volume.

40 13. (Currently Amended) A process for producing the a covering agent as ~~claimed in one or more of claims 1 to 9, in which~~ for a top slag of a metallic melt bath in a metallurgical vessel of the type used in the steel industry comprising the steps of reacting fine-particle mineral raw materials ~~which react~~ with one another at high temperatures and are suitable for a the top slag are mixed and heated until they react to form a mixture, wherein and further

- a) providing at least one raw material which is dewatered ~~and/~~ or calcined so as to release water vapor ~~and/or~~ gaseous products ~~is used,~~
- b) forming the mixture ~~is made~~ into a shapeable compound using a combustible binder,
- c) shaping the shapeable compound ~~is shaped~~ to form material in grain granular form, and ~~in particular granulated to form granules or pelletized to form pellets,~~
- d) heating the material in grain granular form ~~is heated in such a manner~~ that the binder is burnt out, generating pores ~~are generated~~ by dehydration ~~and/~~ or calcining, and then a ceramic bond ~~and/~~ or a sintered bond is produced between the raw materials.

44 14. (Currently Amended) The process as claimed in ~~claim 10~~ claim 13, wherein milled raw materials with grain sizes of <90 µm are used.

42 15. (Currently Amended) The process as claimed in ~~claim 10 and/or 11~~ claim 13, wherein the binders used are one or more selected from the group including water, water glass, synthetic resins, sulfite waste liquor, phosphate compounds and ~~for~~ calcined lime.

16. (New) The process as claimed in claim 13 further comprising the step of using the covering agent to form a top slag melt and a thermal barrier layer on the metallic melt bath, as a monolayer coating on the metallic melt bath.

17. (New) The process as claim in claim 13 further comprising the step of using the covering agent to form a thermal barrier layer on the metallic melt bath, as a thermal barrier agent on a metallic bath.

43 18. (Currently Amended) A process for producing ~~the~~ a covering agent as ~~claimed in one or more of claims 1 to 9, in which~~ for a top slag of a metallic melt bath in a metallurgical vessel of the type used in the steel industry, comprising the steps of reacting fine-particle mineral raw materials which react with one another at high temperatures and are suitable for a the top slag are mixed and heated until they react, ~~wherein-~~

a) mixing the raw materials ~~are mixed with a~~ one or more of the group including water water, and a foaming agent ~~and/or, an expanding agent agent,~~ and ~~for~~ a foam, so that pores are introduced into ~~the aqueous compound~~ raw materials forming a mixture,

b) firing the ~~compound is fired~~ mixture until a ceramic bond ~~and/ or a sintered~~ bond is produced forming a fired product.

44 19. (Currently Amended) The process as claimed in ~~claim 13~~ claim 18, wherein the fired product is comminuted and classified.

45 20. (Currently Amended) The process as claimed in ~~one or more of claims 10 to 44~~ claim 18, wherein organic combustibles are added to the mixture in order to render it porous.

46 21. (Currently Amended) The process as claimed in ~~claim 15~~ claim 20, wherein one or more of paper fibers, sawdust, sawing chips, wood chips and/or styropor granules are added.

47 22. (Currently Amended) The process as claimed in ~~one or more of claims 10 to~~
46 claim 18, wherein the raw materials are selected for producing calcium
aluminates ~~are used~~.

48 23. (Currently Amended) The process as claimed in ~~claim 17~~ claim 22, wherein
raw materials which ensure the following chemistry and ratio in the mixture:

$\text{CaO}/\text{Al}_2\text{O}_3$ from 0.25 to 4, ~~in particular from 1.0 to 1.5~~

are used.

24. (New) The process as claimed in claim 22, wherein the raw materials which
ensure the following chemistry and ratio in the mixture:

$\text{CaO}/\text{Al}_2\text{O}_3$ from 1.0 to 1.5

are used.

49 25. (Currently Amended) The process as claimed in ~~one or more of claims 10 to~~
48 claim 18, wherein the raw materials with a fineness of $<90\ \mu\text{m}$ are used.

20 26. (Currently Amended) The process as claimed in ~~one or more of claims 10 to~~
49 claim 18, wherein the raw materials which contain up to 15% by mass of auxiliary
phases are used.

24 27. (Currently Amended) The process as claimed in ~~one or more of claims 10 to~~
20 claim 26, wherein the auxiliary phases are one or more of the group including
 MgO and/or MgOSiO_2 and/or TiO_2 and/or Fe_2O_3 and/or alkali metals.

22 28. (Currently Amended) The process as claimed in ~~one or more of claims 10 to~~
24 claim 18, wherein the firing step is carried out at temperatures of up to 1250°C.

23 29. (Currently Amended) The process as claimed in ~~one or more of claims 10 to~~
22 claim 18, wherein dewatering and/ or calcining raw materials are used.

24 30. (Currently Amended) ~~The use of a~~ The process as claimed in claim 18
further comprising the step of using the top slag covering agent which has been
rendered porous and forms to form a top slag melt and a thermal barrier layer on a
the metallurgical metallic melt bath, in particular of the top slag agent as claimed in
~~one or more of claims 1 to 9, in particular of a top slag agent produced as described~~
~~in one or more of claims 10 to 23, as a monolayer coating on a~~ the metal melt
metallic bath, in particular on a steel melt bath, in particular used in the steel
industry.

25 31. (Currently Amended) ~~The use of a~~ The process as claimed in Claim 18
further comprising the step of using the top slag covering agent which has been
rendered porous and forms to form a thermal barrier layer on a metallurgical the
metallic melt bath, in particular of the top slag agent, as a thermal barrier agent on a
melt the metallic melt bath or a top slag melt, in particular used in the steel industry.